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THE ROLE OF INTERNATIONAL AND REGIONAL
RESEARCH INSTITUTIONS

November 1985

An excerpt from Searching, 1985, prepared
by Tim Dottridge



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2000
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OVERVIEW

International and Regional Research Institutions

The period since World War II has seen an unparalleled commitment to international cooperation. Initial enthusiasm for the development of multilateral institutions owed much to the experience of a World War and to the depression and international economic hardship that had preceded it. The growing number of countries attaining independence in the 1950s and 1960s, bringing with them aspirations for improvements in the living conditions of their peoples, encouraged the evolution of the existing system. Third World countries have been especially vocal in supporting the evolution of multilateral mechanisms as a critical element in assisting them to meet their national development objectives.

With 1985 marking the 40th anniversary of the United Nations (U.N.), the agencies of the U.N. system are particularly in focus. The World Bank and the International Monetary Fund (IMF) have taken on an increasingly prominent role with the continuing economic and financial crisis facing Third World countries. The General Agreement on Tariffs and Trade (GATT) continues to be the major forum in which discussions of trade expansion take place. The agencies of the U.N. system are, however, only the best known and most universal of a vast array of institutions and groupings that have been created by groups of countries coalescing around perceived common interests — trade groupings, political groupings — the ambition of many encompassing both these areas and more.

Growth of Multilateral Institutions

Although the development of new

universal organizations has been halted since the International Fund for Agricultural Development (IFAD) was established in 1979, regional organizations are still being formed, expanded, or revitalized. In Africa, the Southern Africa Development Coordination Committee (SADCC) is perhaps the best recent example of a multilateral approach to a common set of problems. The Preferential Trade Area formed by 14 East, Central, and Southern African countries in July 1984 and the Economic Community of West African States (ECOWAS), formed in 1975, are other examples. Both the Organization of American States (OAS) and the Organization of African Unity (OAU) have provided opportunities for discussion of regional issues. The OAU summit meeting held in July 1985, while focusing on the poor economic performance of African countries, reaffirmed the importance of regional groupings to future prosperity, also a salient feature of the Lagos Plan. Four main regional development banks were established between 1959 and 1969 to organize and provide financing for major development projects in their region. In Asia, efforts at collaboration have been stepped up both within and outside organizations such as the Association of South East Asian Nations (ASEAN). This commitment to regional groupings has not detracted from organizations where membership is determined on different criteria such as the Commonwealth, which continues to grow as new countries become eligible for membership.

This impressive set of postwar multilateral institutions, regional and international, contributed to providing an environment in which some major achievements have been realized. This period has seen the largest burst of

sustained economic growth in human history and great efforts to alleviate poverty and pressing development needs. Gross national product (GNP) per capita increased on average by 3.1% per year in the developing countries between 1955 and 1980, whereas in the industrial market economies it grew by 3.6% from 1955 to 1970 and by 2.4% in 1970–80.

Important progress was made in developing countries with respect to social indicators such as literacy and child mortality. Clearly, however, all did not share in the fruits of economic growth. Although the 1960s allowed for a certain optimism and the hope that many developing countries would emulate the development of the industrialized countries, there was a growing sense of frustration in the 1970s engendered by the vast gap between the expectation of sharing in world prosperity and the reality of limited success. The call for a New International Economic Order — and discussion of issues in the global context of North–South relations — provided demands for change that were not easily or readily accommodated.

In the 1970s and 1980s, multilateralism has been under pressure for both economic and political reasons. There have been movements toward greater trade protectionism, although these have been challenged by proposals to liberalize trade further. This tougher international climate has directly affected most multilateral institutions because they depend in large part on funding from developed countries via Official Development Assistance (ODA) budgets. In its latest annual review of members' ODA (*Development Cooperation, 1984*), the Development Assistance Committee (DAC) of the Organisation for Economic Co-operation and Development (OECD) considers three views of the future: first, that recent problems in funding multilateral agencies will be followed by a resumption along the same lines as before; second, that these problems

“herald a reversion to the primitive situation of the early 1960s, when what was called ‘aid’ was no more than a conglomeration of widely differing activities, with widely differing objectives.” The review concludes: “So one is led to a *third* and brighter view, according to which the recent problems of funding have been sufficiently severe to force a review of the role of multilateral agencies, both individually and collectively without threatening their destruction (one or two agencies, notably IFAD, excepted).”

Whatever the specific value or need for change in particular institutions, there continue to be strong arguments for the maintenance and strengthening of a multilateral framework in which work can be undertaken on the growing number of issues that transcend national boundaries. Nowhere is this more true than in the field of research.

Multilateral R&D Institutions

The multilateral approach has a particular attraction in the fields of science and research. The arguments in favour of international cooperation are here every bit as cogent as in other fields of economic and technical endeavour. Many of the problems being tackled by research are common to several countries and influence the lives of large numbers of people. No country, not even the largest and most advanced, can afford to ignore scientific discoveries and progress being made elsewhere. The scientific community and increasingly the public have become aware of the interdependence between nations and the role that science can be made to play in solving development problems. At the same time, there has been an increasing sense of the growing vulnerability of the whole planet to changes or threats to one part of the global system.

As might be expected, some major developments concerning multilateral

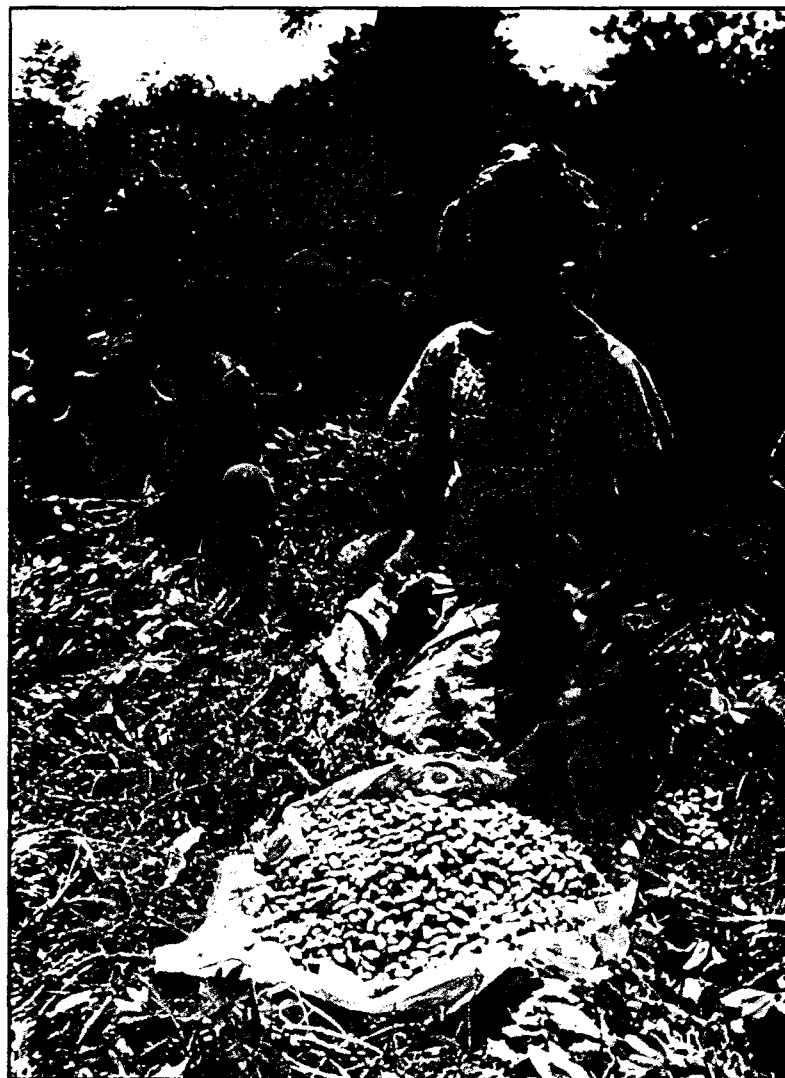
institutions and contacts have been those related to research. The International Development Research Centre (IDRC) has been a part of these developments and has played a role not only in supporting the activities of a number of the institutions concerned, but also in the establishment of several. With this involvement, there has been a growing realization that the full dimensions of the set of institutions concerned do not appear to have been widely recognized or documented. As a result, IDRC has recently been undertaking a survey to gather more information on them.

Nearly 300 institutions were initially identified that were based in developing countries and appeared to have a multilateral mandate and a direct role in undertaking or complementing research. No research-funding agencies were included. Although the survey is not yet finished, 192 institutions have now been confirmed, mostly by returns to a mail survey, as fitting the general criteria of the study.

The survey covered a heterogeneous array of research-related institutions. "Multilateral" was taken in most instances as meaning that an institution covers *at least three countries*, both in the sense of it owing its existence to the initiative of several countries or multilateral agencies and in having an objective of providing services to more than one country. These institutions are usually termed regional or international. "Multilateral" has been used here to cover both categories. Of the 192 institutions that have returned questionnaires, probably 30 could reasonably claim to have an "international" focus in terms of covering a number of geographical regions, whereas the remaining 162 were regional. This was not, however, a hard and fast line.

The IDRC survey includes both institutions that are directly involved in *conducting research* as their major purpose (the Asian Vegetable Research

and Development Centre and the Caribbean Industrial Research Institute, for example), and those that are *research complementing* by providing support services to research such as research promotion, training, information, and dissemination (for example, the Council for the Development of Economic and Social Research in Africa and the Arab Organization for Agricultural Development). Although a distinction has been made between these two groups in terms of their involvement in research, the institutions more properly belong on a spectrum. It is easy to distinguish between institutions at opposite ends of the spectrum in terms of their



How many jobs are created by rural agroindustries like peanut processing? Planners are working to find out.

role in research, but the dividing line between the two categories is not a hard and fast one. At present, 82 of the 192 institutions are classified as "conducting research" and 110 as "research complementing."

The information collected to date is believed to be reasonably comprehensive and representative of the total. IDRC will publish a directory of institutions once the survey is completed. It covers only those institutions that are based in developing countries; those based in developed countries, such as the International Food Policy Research Institute (IFPRI), represent a significant additional number of institutions.

The total resources required annually for the activities of all institutions covered in the survey may be as high as \$1 billion. Those institutions involved in a major way with research account for about \$500 million, of which the International Agricultural Research Centres (IARCs) make up a little under half. The research budget of institutions involved less directly in research is a further \$75 million.

Research may not be a major part of the overall mandate of some of those organizations identified as "research complementing," but, nevertheless, they play an important role in research developments and coordination in their regions. All institutions were asked to estimate the research portion of their budgets, although they have clearly done this using considerably different criteria. Some of the IARCs, for instance, report as little as 40% of their total budget as *research*, where for the purposes of the IDRC survey almost their entire budget might usefully be counted as research.

The institutions covered do not form any kind of global system, implying, as this term does, a rational and integrated set of activities, and the IDRC survey may be the first time that they have been analyzed as a group separate from other international and regional

institutions. Many owe their initial funding to initiatives of U.N. specialized agencies; others have been established to take care of a general or sectoral research interest under the umbrella of regional organizations having a primarily economic or political purpose. They range from the best known group — the IARCs with their common funding source through the Consultative Group on International Agricultural Research (CGIAR) to institutions that have been established in isolation from similar ones existing elsewhere. They vary also in size from a budget of less than \$50 000 to over \$20 million.

Given this marked heterogeneity, it is important to bear in mind that many of the institutions are small and cannot easily be compared to the best known of the multilateral research institutions. In spite of the imperfections of the data, however, the overall numbers, resources, and potential impact on national research programs in developing countries make it essential to carry out some common analysis and review of this group of institutions that has been identified as playing a role in research. This is particularly so from the point of view of donor organizations such as IDRC, because these institutions require a significant proportion of their funding from donor agencies and thus represent a substantial, "permanent" draw on ODA resources.

From a base of only five in 1945, the number of multilateral research-related institutions has grown rapidly to the present figure of over 200, with a peak number being established in the 1970s, when an average of eight new institutions were created each year.

Initial information indicates that this growth has dropped off markedly in the 1980s; although part of this perceived drop may be because of a lag in a new institution becoming established and well known, it clearly relates also to the prevailing shortage of funding and the increased questioning of the role of

multilateral organizations. In some cases, such as agricultural research, it may also be because of a feeling that the most important research areas are now covered by international centres. Figure 1 groups institutions by the date of their establishment.

Although the development of multilateral, research-related institutions has been global and of significance in all regions, the rate of creation is explained not only by the availability of resources for new institutions but also by the pattern and rhythm of countries achieving independence and wishing to form regional groupings and by timing of the arrival on the world "agenda" of various issues and problems (population, environment). The growth in the 1940s and 1950s was focused in Latin America, that of the 1960s, however, came to some extent from all regions but increasingly from Africa and the Caribbean. The 1970s saw a marked increase in overall numbers, with particular concentration in sub-Saharan Africa. The number of such institutions in

a region is clearly related to the number of countries in the region and to the need and desire to form subregional centres or groups. Figure 2 shows the pattern of establishment by region; the rate of new creations for 1981-85 has been used to make a projection, assuming a constant rate for the decade, for the probable number to be established in the 1980s.

A sectoral breakdown of institutions indicates a concentration in agriculture and social sciences (see the following table and Fig. 3) with considerably less focus on health and industry. If education were included with the social sciences, the number of institutions in the agricultural and social sciences fields would be approximately the same.

As can be seen from the table, the global figures hide the fact of considerable regional variation; agricultural institutions are spread fairly evenly across the regions, although South and Southeast Asia and sub-Saharan Africa account for 72% of the total. Over half the social science institutions, however,

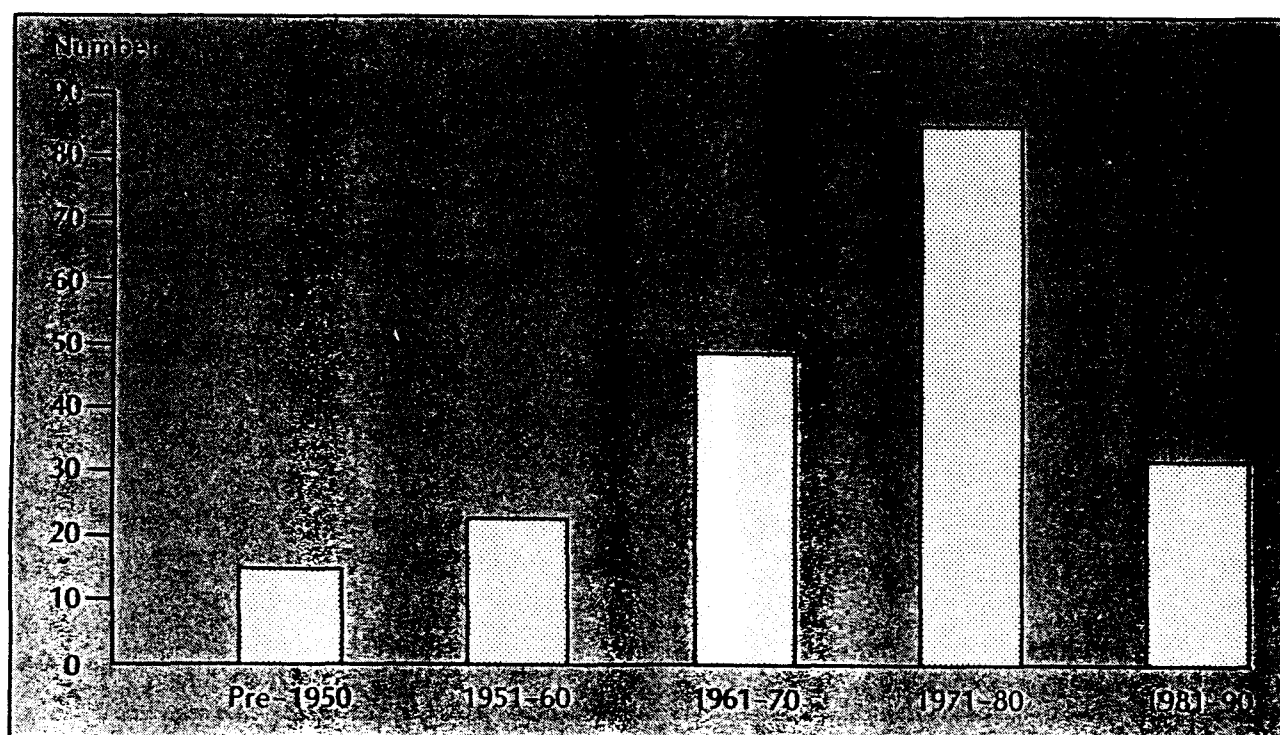


Fig. 1. Multilateral research-related institutions by year of establishment. (The projection for 1981-90 is based on 1981-85 experience.)

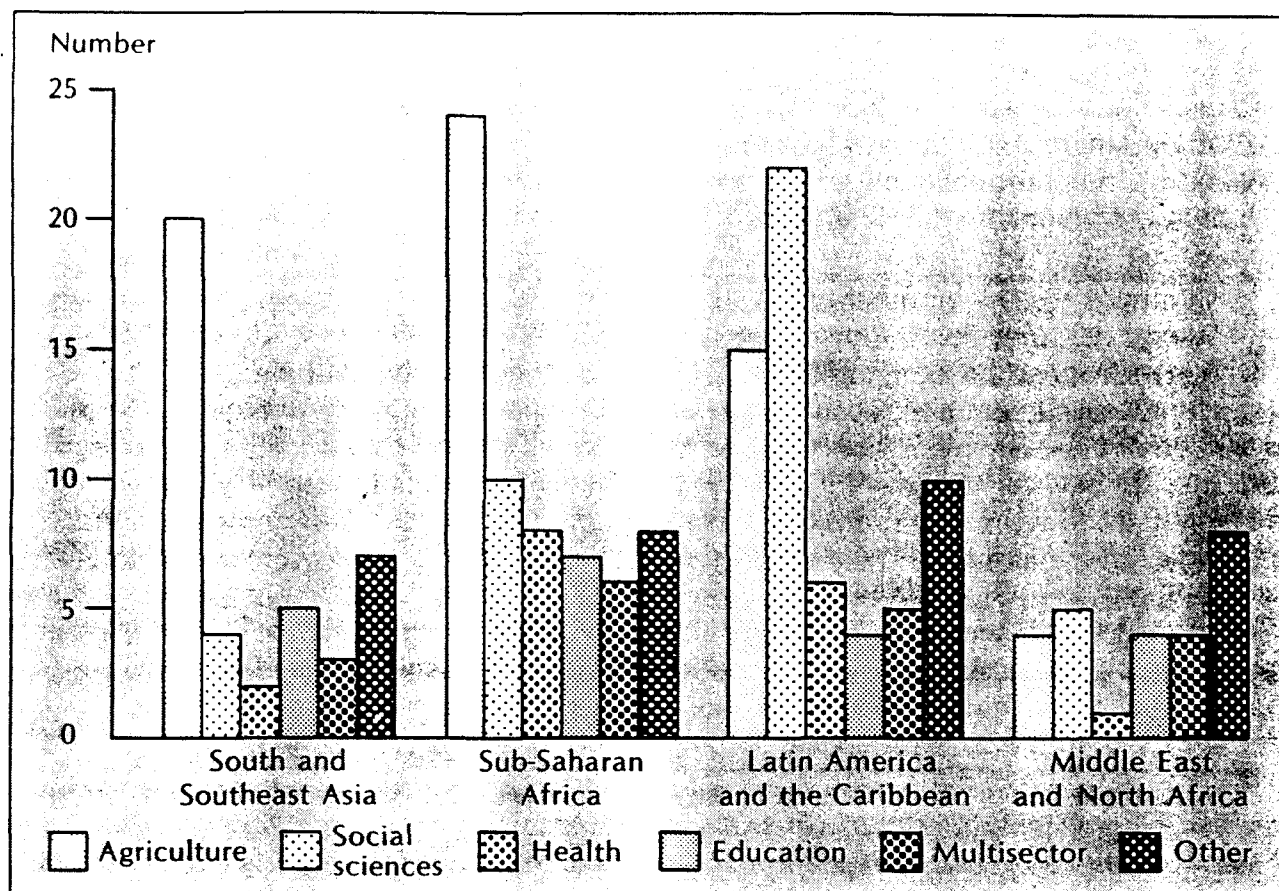


Fig. 2. Multilateral research-related institutions by sector and region.

are located in Latin America; the number appears to be related to the combination of a large pool of well-trained researchers in an environment where some governments have been neither receptive to nor supportive of social science research in national institutions. Multilateral institutions have been perceived as providing easier access to external funding and greater insulation from political pressures.

Although the data on the resources of these institutions are still the least precise area of information collected in the survey, it seems that they employ over 5000 professional staff (the term professional was used for personnel having at least a Bachelor's degree or its equivalent).

Role of Multilateral R&D Institutions

The development of the multilateral research and development (R&D)

institutions represents an enormous investment of resources and a considerable pool of expertise. The magnitude of the figures involved, and also the tremendous potential they represent, make it important to consider the effectiveness and the opportunity cost of the resources used. This can only be done on an institution-by-institution basis — considerably beyond the scope of this limited survey. It may, however, be useful to outline some features that provide a broad framework for future institutional assessment. This section examines briefly the reasons for the creation of these institutions and the role they play before raising a number of issues related to their continued development and effectiveness.

In addition to the clear applicability of a multilateral approach to research activities, there have been, of course, precise considerations lying behind the increased resources to multilateral, research-related institutions:

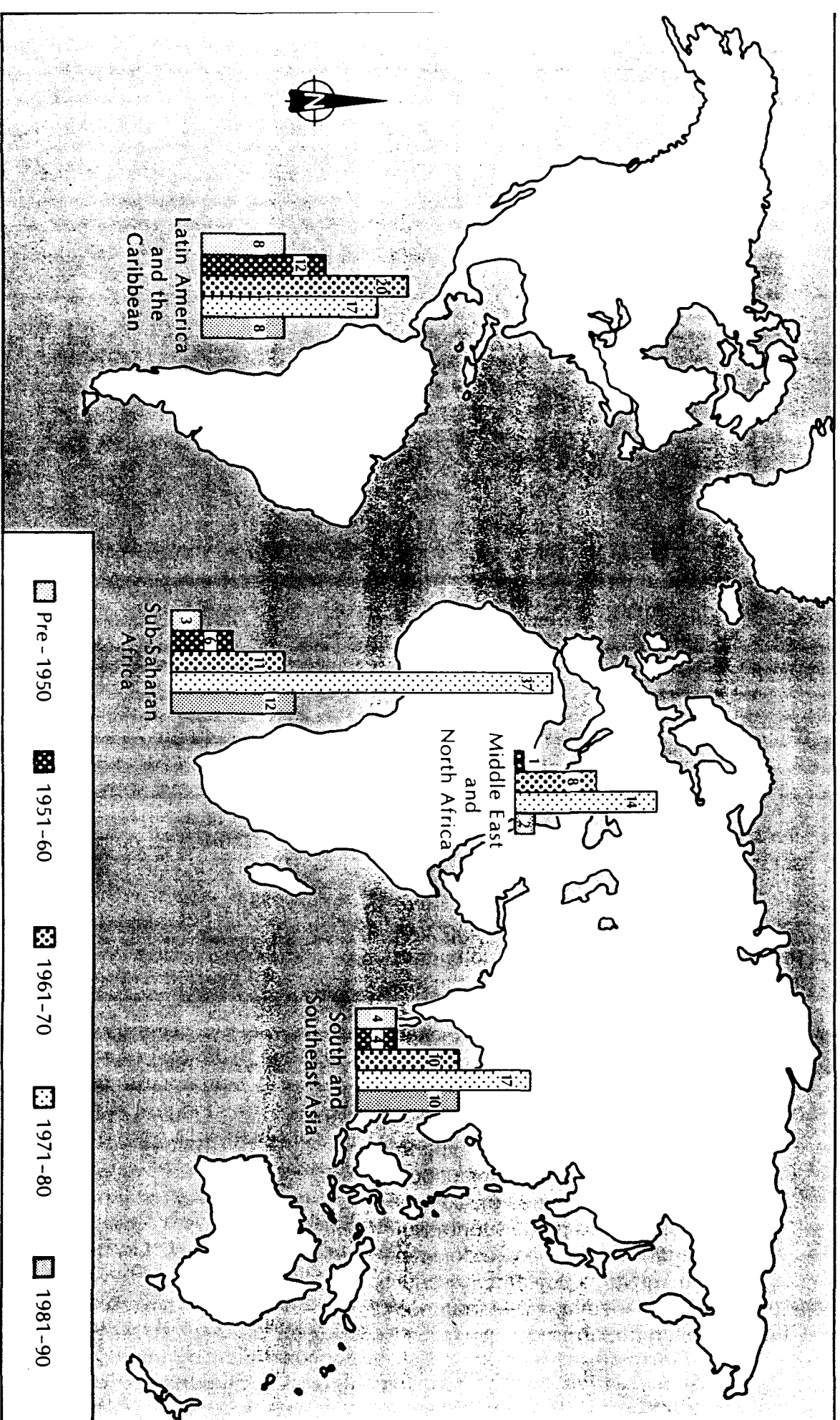


Fig. 3. Multilateral research-related institutions by region and date of establishment. (The projection for 1981-90 is based on 1981-85 experience.)

Information flow — During the colonial period, research in colonial territories was usually managed directly by, or supervised from, the metropolitan capital. A certain distribution of information throughout the colonial territories was assured using the capital as the focal point. Independence meant that there was a need to replace and widen these channels, so that exchange of information was no longer restricted to one colonial sphere of influence. Multilateral centres provide new channels of information flow that are not dominated by one country.

Colonial legacy on research agenda — The colonial era also set a research agenda that took excessive account of the colonial power's interests. Consequently, there was a need to move quickly to focus research on areas of interest to the developing countries. There was also the feeling that where the metropolitan countries had supported scientific work of interest to the colonial areas, the resources devoted to these

fields might diminish after independence (e.g., tropical health).

Weak infrastructure in developing countries — With inadequate infrastructure and capacity in developing countries, multilateral institutions could perform important services to national R&D through undertaking research and assisting in building research capacity.

World-class research — There was also the idea of bringing world-class research to bear on intractable development problems. By providing excellent facilities, and attracting scientists of world standing, it was felt that multilateral institutions could contribute to making a real breakthrough on some major development problems.

Proven productivity — The positive image of the utility of multilateral research was further reinforced by some highly successful research, particularly in the agricultural field, undertaken by international centres.

Multilateral research-related institutions by sector and by region of the world, 1983

	South and Southeast Asia	Sub- Saharan Africa	Latin America and the Caribbean	Middle East and North Africa	Sector Total	Percentage of total
Agriculture	20	24	15	21	63	33
Social sciences	4	10	22	5	41	21
Education	5	7	4	4	20	10
Multisector	3	6	5	4	18	9
Health	2	8	6	1	17	9
Industry	3	2	3	2	10	5
Management and administration	3	1	1	2	7	4
Environment and ecology	—	2	2	—	4	2
Information and communi- cations	1	1	1	1	4	2
Engineering and technology	—	—	—	3	3	2
Physical sciences	—	1	2	—	3	2
Energy	—	1	1	—	2	1
Total	41	63	62	26	192	100

The sections that follow concentrate on those institutions classified as “research institutions,” although some of the analysis may be extended to the “research-complementing” ones as well. The main functions of the multilateral research institutions have been to undertake research for development and to provide support to national systems; given that the set of institutions identified accounts for a significant quantity of resources, there are a number of issues that warrant consideration. There is a brief discussion of the following:

- (a) Payoff (productivity and effectiveness) from the institutions,
- (b) The need for a concerted view of the priorities for funding,
- (c) The relations of these institutions to national research, and
- (d) Cost-effective alternatives to the creation of new research institutions for ensuring the multilateral dimension in research.

The *first* major issue is that relating to the payoff (productivity and effectiveness) from the considerable resources invested. By their very nature, the multilateral institutions have often been drawn into a higher cost pattern (higher salaries, better facilities) than prevails in developing-country national research, and the expectation has always been that their product would compensate for the higher costs. Most are still recent creations, and they have not yet had adequate time to provide good-quality research that can feed into countries’ development; a recent U.S. Agency for International Development (USAID) publication (*Plan for Supporting Agricultural Research and Faculties of Agriculture in Africa, May 1985*) recalls that “although the beginning of a formal public-supported agricultural research process dates [in USA] to 1861, results in terms of increased yields did not begin to appear until the 1930s” The mid-1980s are seeing increasing attention paid to the

“effectiveness” of aid generally in the development process as shown by the Cassen Report on Aid Effectiveness commissioned by the IMF/International Bank for Reconstruction and Development (IBRD) Task Force on Concessional Flows and by the existence of the Task Force itself. As might be expected, similar concerns have been voiced with respect to the research institutions, although these have been directed for the time being at the IARCs because they are the best known, the most easily identifiable, and account for a substantial proportion of total funds to multilateral research.

The CGIAR recently completed a major study on the “Achievements and Potential of the International Agricultural Research Centres” that represents one of the largest reviews ever undertaken of the performance of a set of research centres. The contribution, high payoff, and impact on increasing food production of some of the IARCs work particularly on rice, maize, and wheat are well documented. The CGIAR study also devotes considerable attention to the role of the IARCs in building research capacity in developing countries.

In addition to agriculture, there are signs of significant developments in other fields — the International Centre for Diarrhoeal Disease Research — Bangladesh (ICDDR), for example, contributed to the major development of oral rehydration therapy and is now working on the field trials of a new oral vaccine for cholera. Equally, not all work undertaken by multilateral institutions relating to research provides for such tangible products as vaccines and high-yielding crop varieties. Although the available evidence is not comprehensive enough to show that significant benefits are being derived from all institutions, and undoubtedly many could improve their present effectiveness, the limited evidence does indicate that they can perform a valuable

supplementary and complementary role to national programs.

A *second* issue concerns the need to establish a broader framework in which to examine relative research priorities and requirements before expanding existing or establishing new centres. Although any one individual institution may be addressing a significant development issue and may provide a significant return on investment over time, there are opportunity costs in terms of other research issues and national program needs that could also benefit from more resources.

Most existing institutions receive much of their funding from ODA resources that have shown limited real increases in the last decade. Although developing countries provide some support, particularly to regional centres, and this may increase in the future, it appears that most of the funding for these centres will continue to come from ODA sources. Thus, expansion of existing centres and proposals to create new institutions, both to fill major gaps and to respond to new challenges such as in energy or biotechnology research, must increasingly take account of total resource limitations. To date, there appear to have been few attempts to establish new institutions in terms of any relative priority between sectors; even within one sector, information and mechanisms by which to make such assessments are weak.

The CGIAR provides a notable exception where a more concerted approach within one sector has been used in funding the work of 13 IARCs on the world's major food commodities. A mechanism exists for allocation decisions to be made explicitly on the priority accorded to different commodities and different areas of research.

A *third* issue concerns the relationship of these institutions with national research in the developing country. Whatever the potential of the research and support they provide, its

actual use in national development or decision-making can only be as effective as the national research system with which the institutions interact. There is, therefore, a balance required between support to these institutions and support for building research capacity and facilities at the national level. They are sometimes considered as competitors to national systems for donor support. One study has even described them as the "main stations" of Third World research, with national research as the "branches," whereas clearly multilateral research centres must support and strengthen national programs. Another study some years ago indicated that the growth of multilateral research has been financed largely by an increase in funding for research, although there appeared to have been some modest reduction in funding for national programs.

Equally, there are cases where funding to multilaterals has actually brought forth increased complementary funding to nationals. The competitive element should not be exaggerated. IDRC is currently supporting a study to estimate the overall funding provided by major donors to support development research. This should permit a more informed judgment on the proportion of overall funds available to support development research that is going to multilateral institutions.

A second element of the relationship is consideration of the actual services provided to national research. In the past, the creation of new multilateral institutions may not always have given adequate consideration to what research and research services would best enhance national efforts. Some initiatives may have been dictated by "supply" considerations, i.e., the identification of an important research subject that would benefit from the concentration of resources implied by creating a regional or international institution. In such cases, consideration of the most appropriate

focus in light of national systems' needs has only come after the new institution is established.

With an increasing awareness of the importance and growth of national research programs, multilateral institutions must strive to maximize their support to national research systems. With the increasing heterogeneity of national systems' capabilities and requirements, however, these centres are facing an even greater range of demands on their services — this can be illustrated by the CGIAR review's suggestion that the IARCs may have to move into more basic research to support sophisticated national systems (e.g., in Brazil and India), while providing all the traditional supports to other countries. Clearly, many of the smaller countries (80% of those in sub-Saharan Africa and in the Latin American and Caribbean region have populations of less than 10 million) are unlikely to be able to afford a set of national research institutions that will span in depth all the problem areas in which they require research. Some recognition of interdependence and of the benefits through pooling research resources to achieve critical mass is clearly desirable for those countries in particular.

A *fourth* issue links to the preceding one: given their importance to national research, how can multilateral consultation and backstopping be provided most cost effectively? The creation of new regional and international institutions, particularly research centres, has been costly. In consequence, there has been an increasing tendency to emphasize models of international and regional cooperation that allow for adequate coordination without creating major facilities requiring substantial, long-term international funding. These approaches reduce the large capital and operating costs of research centres by concentrating on *networking* and pooling the use of existing *national*

resources and facilities. Some recent examples that contain elements of this approach are: the International Council for Research in Agroforestry (ICRAF), the International Board for Soil Research and Management (IBSRAM), the International Irrigation Management Institute (IIMI), the International Network for the Improvement of Banana and Plantain (INIBAP), and the regional concerted research program being undertaken by the countries of the SADCC, where each member country takes leadership responsibility in one area. The Southern Africa Centre for Cooperation in Agricultural Research (SACCAR), for example, is located within the Ministry of Agriculture in Botswana.

IDRC and Multilateral Research

IDRC has actively encouraged and participated in the creation of several international and regional research institutions; indeed, few donor agencies have been more active in this area. The Centre played a role in the activities leading to the establishment of three out of the five organizations mentioned in the preceding paragraph. The Centre has made an effort to ensure that proposed new centres are carefully justified and merit support before it becomes involved in supporting their establishment. Where support has been provided for ongoing programs, it has been directed at increasing the links between these centres and national systems. Support for multilateral institutions has to be justified on the basis of complementing and reinforcing national research programs.